The Political Geography of Environmental Regulation: Implementing the Water Framework Directive in the Douro River Basin, Portugal

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> "Why did we become blind, I don't know, perhaps one day we'll find out, Do you want me to tell you what I think, Yes, do, I don't think we did go blind, I think we are blind, Blind but seeing, Blind people who can see, but do not see."
>
> José Saramago, *Blindness*

INTRODUCTION

The adoption of the Water Framework Directive (WFD) by the member states of the European Union in 2000 was considered a milestone in the history of environmental regulation not just in Europe, but around the world. Because of the combination of environmental targets, economic safeguards and social sensitivity, the approval of the WFD has been described as a major step forward in the contemporary search for better environmental regulation and water management, as can be seen in its justification by the European Commission (2011):

> "The increasing demand by citizens and environmental organisations for cleaner rivers and lakes, groundwater and coastal beaches has been evident for considerable time. (...) This demand by citizens is one of the main reasons why the Commission has made water protection one of the priorities of its work. The new European Water Policy will get polluted waters clean again, and ensure clean waters are kept clean. (...) European Water Policy has undergone a thorough restructuring process, and a new Water Framework Directive adopted in 2000 will be the operational tool, setting the objectives for water protection for the future."

However, since its first years of implementation, it has become increasingly evident that old practices and institutional barriers affect the renovation of water policies and management approaches (Ioris, 2008a). This paper examines the shortcomings of the translation of the WFD into policy-making in the Portuguese section of the Douro River Basin, which is shared between Portugal and Spain. In order to understand the possibilities of the new water legislation, it is first examined the evolution of water use and regulation in the river basin according to a suggested classification into five successive phases. The new institutional context, after the approval of the Portuguese water law, which translated the WFD into national legislation in 2005, is then examined, taking into account the reactions and expectations of different sectors of water users. To a large extent, the public debate about the new water regulatory regime has been dominated by the controversial introduction of bulk water charges and the calculation of the monetary cost of mitigation measures. The empirical findings demonstrate the uneven results of the institutional reforms in the river basin and provide important lessons about the implementation of the WFD and, ultimately, the shortcomings of state action. Among those lessons, it is very clear that a significant proportion of water users remain sceptical about the ultimate objectives and beneficiaries of the new water regulatory approach, which suggests that the new regulatory framework needs to be improved in order to respond to wider social and political demands.

WATER MANAGEMENT AND THE POLITICS OF STATE INTERVENTIONS

The allocation, use and conservation of water are more than simply technical and physical interventions, but also encapsulate conflicting values and complex interactions between social groups and politico-economic sectors. Particularly in regions with dense population and intense economic activities, such as Western Europe, the management of water reserves and aquatic ecosystems represents a major challenge for the public and private sectors alike. Mounting pressures and conflicting demands have called for improved regulatory approaches capable of solving water related conflicts and preserving the integrity of water systems. At the same time, changes in water use and conservation policies can provide a unique opportunity for dealing with emerging threats and environmental risks.

In the context of the European Union (henceforth, EU), established in the 1950s and now including 27 member states, the growing complexity of water management corresponds to one of the main chapters of environmental policy, legislation and regulation. The public sector, which in the EU extends from local authorities (of different sizes and operational structures) to national states (with significant territorial, economic and population disparities) and, eventually, the interstate administrative structure (i.e. European Commission, European Parliament, Council of Ministers and Court of Justice), is increasingly required to demonstrate leadership, exert fairness and foster innovation in water management and technology. These are demanding tasks that have largely defined the agenda of water regulation in the last decades. Since the early years of European unification, EU member states have operated according to a shared, multiscale and often burdensome type of statehood, where successive plans and regulatory efforts have attempted to improve the institutional mechanisms for dealing with water management problems (Grimeaud, 2001). In practice, though, the end result has largely been ‘an organised anarchy’, especially because of the failure to deal with competing interests, inadequate technologies and insufficient public participation (Richardson, 1994). Habermas (1991) draws attention to the contradictions of the European State due to the requirement to become more inclusive at the same time that it loses its ability to operate effectively as a ‘rational’ entity.

The introduction of the ‘WFD regime’ (i.e. the range of national legislation, official norms and technical procedures related to the implementation of the WFD across the EU) has been often described as an opportunity to enhance the environmental commitments of national governments and public agencies, as well as a central tool for promoting new networks and integrating development planning with environmental management (Howe and White, 2002). At the same time, the implementation of the new Directive has been fraught with new challenges and shortcomings, such as the tendency of non-compliance and accommodation to the requirements of WFD among some member states (Liefferink et al., 2011), difficulties with defining regulatory standards and securing additional resources (Kanakoudis and Tsitsifli, 2010), as well as with the lack of commitment, leadership, public involvement and transparency (Andersson et al., 2012; Gouldson et al., 2008; Watson et al., 2009). WFD regulators have typically made use of only a narrow sub-set of regulatory options that basically replicate their previous (pre-WFD) approaches, which happens because of resource constraints, lack of scientific data and institutional inertia, among other factors (Kirk et al., 2007).

Despite the important academic investigation carried out on the implementation of the WFD regime, such as those just mentioned, it is critical to recognise that most scholars interested in water regulatory reforms still understand the public sector as a consistent, predetermined entity put in charge, on behalf of the whole society, of mediating water demands and environmental impacts. In that sense, the majority of the analyses concentrate on the adjustments required to attain the supposedly consensual and innovative properties of the new water regulation. At the same time, they also insist on the advantages of the pragmatic, market-oriented policy-making pursued by the EU state apparatus. Consequently, a large proportion of the discussion about the new water legislation has struggled to explain the deeper dilemmas faced by the European public sector and the unexpected reactions of social and economic sectors. The reductionist conceptualisations of the role of the state and of its contested environmental agenda have constituted a main obstacle for the proper examination of the outcomes and the prospects of new water regulatory arrangements. Such approaches neglect the fact that water regulation unfolds through the prioritisation of some politico-institutional demands in a way that inscribes the balance of power in the management of water itself (Ioris, 2012). Whereas the agencies of the state play a leading role in the assessment of environmental problems and in the formulation of water management responses, the work of the state also reflects multiple internal contradictions and political clashes (Poulantzas, 1978). Environmental problems, such as water management failures, need to be reinterpreted as the product of the uneven balance of power and the intricate socionatural relationships that permeate, and are influenced by, the state.

Our main objective here is to examine how the reorganisation of the water regulatory functions of the Portuguese State that follows the introduction of WFD has affected the interpretation of problems and the rationale of responses. Although the new legal framework is still in its first stages of implementation (i.e. mitigation measures need to be in place by 2015), the intention is to critically understand the overall direction of WFD regulation in the Douro. It will be discussed below that, so far, the introduction of new regulation in the region has had limited and ambiguous outcomes, given that the attempts to induce environmental restoration through economic growth and monetised relations have led to renewed conflicts and widespread resentment. At the same time that the WFD regime has enlarged the technical and institutional for dealing with water problems in Portugal, there has been modest public involvement (Thiel, 2010) and most activity has been a combination of hydraulic engineering and neo-liberal market governance (Lopes, 2009). In order to investigate those issues in the Douro, the text is organised as follows: the next two sections describe the area of study and the methodological approach, and situate WFD as the final stage in the long history of institutional reforms. The specific achievements and failures of the WFD in the Douro will be then discussed making reference to the perceptions of different social groups. The text ends with some concluding observations and recommendations.

AREA OF STUDY AND METHODOLOGICAL APPROACH

The controversies related to the introduction of the Water Framework Directive in the European Union will be considered through a study of the regulatory experience in the Portuguese section of the Douro River Basin. The present analysis also tries to respond to the provocative observation by Dominguez et al. (2004) that water management issues of the Douro have been often hidden from the public debate. The

Douro is the largest Iberian river basin (97,290 km^2), split between Spain and Portugal (Sabater et al., 2009), as can be seen in Figure 1 (the same rive is also called Duero in Spain). In terms of length, it is the third longest river in the Iberian Peninsula (927 km), flowing from the Urbion Hills in Spain to the city of Oporto (Porto in Portuguese) at the Atlantic Ocean (INAG, 2001). Water use in the river basin is primarily for agriculture purposes (particularly in the Spanish section) and, secondly, for hydroelectricity generation (more than half of Portuguese generation is located in the Douro). Industries, cities, navigation and mining are also important user sectors (INAG, 2007). Because of untreated effluents coming from Spain, at the point the Douro enters Portugal the level of pollution (nitrates in particular) is considerably high (LMNOS, 2000). The ecological condition is further degraded by irrigation abstraction, urban effluents, impoundments and riparian deforestation, which means that a significant proportion of the Portuguese river basin has chemical and biological parameters at levels above the legal thresholds (ARHN, 2011; INAG, 2001).

There have been persistent obstacles to integrate policies and management between Portugal and Spain, which constitutes an additional challenge now that WFD requires formal cooperation in river basin districts. Some modest collaboration was achieved with the signing of the Albufeira Convention in 1998, which determined that Spain had to guarantee a minimal annual volume of water at several points along the Douro River. In practice, however, Spain has breached the Convention in several occasions, such as during the droughts of 2001-2002 and 2004-2005 when the agreed provisions were not observed. The Convention was amended in 2008 and Spain is now supposed to maintain more detailed (weekly and quarterly) river flows.

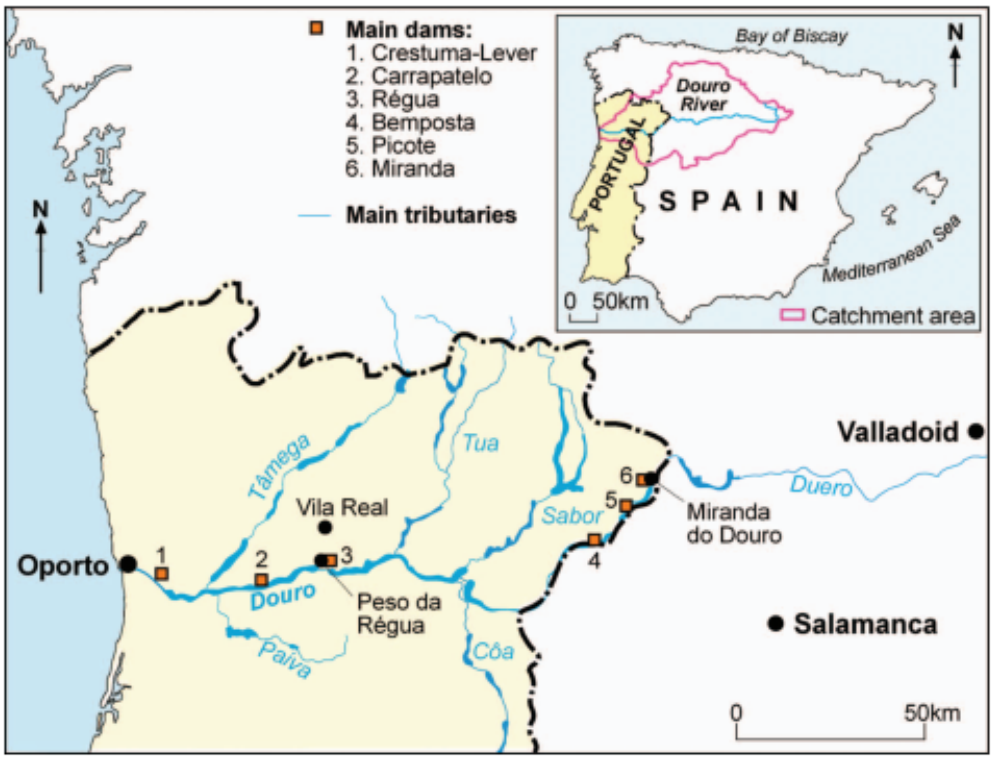

Figure 1 – The Douro River Basin in Portugal

In order to understand the achievements and prospects of the ongoing institutional changes, fieldwork was carried out in 2008-2009. Forty three in-depth interviews were conducted and various public events related to WFD and regional economic development were attended. Interviews were transcribed, coded and analysed in Portuguese and only the extracts reproduced in this paper were translated into English. The research started with the consideration of sub-units of the Douro catchment and then scaled them up to identify common water policy patterns at higher scales. The study initially included interviews with water users, public authorities, activists and academics involved with water regulation and policy-making. Interview respondents were purposely selected from an array of organisations that represented multiple interests in the water management sector, environmental conservation and regional development. Based on this preliminary information, a database of public and non-governmental sectors was developed, which guided further interviews, the analysis of documentation and the collection of background information. This approach aimed to provide a representative illustration of the controversies, alliances and disputes that underpin the implementation of the new Directive. Secondary data and water management information were obtained in the libraries of the universities of Porto, Coimbra, Lisbon, Valladolid and Salamanca, in the council libraries of Vila Real, Miranda do Douro and Peso da Régua, and from the National Water Institute (INAG) in Lisbon. Follow up contacts and consultation of policy documents continued over a two years period and the later stages of the writing coincided with the public consultation, at the end of 2011, on the mitigation measures need to achieve WFD objectives.

REGIONAL DEVELOPMENT, WATER USES AND THE IMPLEMENATION OF THE WATER FRAMEWORK DIRECTIVE IN THE DOURO

For centuries, the management of the River Douro and its tributaries has played a strategic role in the economic development of the North of Portugal and in its commercial integration with other European nations. The daily practices of regional groups, and their interaction with other national and international regions, have helped to change the river basin in highly dynamic and politicised processes (Ioris, 2008b). The upper reaches of the river have become the electric powerhouse of the country after the construction of a cascade of hydropower schemes, whilst the lower sections have been associated with industrial production, the transport of goods and significant urbanisation. Since the entrance of Portugal into the European Union in 1986, the region has experienced intense socioeconomic transformations, which has had considerable repercussions in terms of environmental regulation and also water management. On the one hand, there have been investments in infrastructure, tourism and in various forms of cultural and social integration. On the other hand, the region has struggled to compete with foreign imports (AEP, 2006) and the advance of neoliberal economic policies has reinforced macroeconomic imbalances (Estanque and Mendes, 1997). In that context, the introduction of the WFD in Portugal is an integral part of the search for an alternative to regional development approaches and for improved standards of natural resources management.

Evolution of water use and regulation

In schematic terms, it is possible to identify at least five different periods in the recent history of water use and regulation that culminate in the current implementation of WFD. Needless to say, these five phases are directly connected with broader political and economic changes taking place in Portugal and in Europe at large. First, the *pre-industrial period*, until the early 20th century, during which the main economic activities related to the Douro River were boat navigation and the transport of wine from the Peso da Régua region, in the middle section of the catchment, to the Porto docks (Pereira, 2008). The first hydropower generation scheme in Portugal was installed in a Douro tributary in 1894 (Leitão, 2005), which anticipated the expansion of hydroelectricity in the following decades. As had been the case in previous centuries, in the middle of the 19th century the supply of water to the city of Porto still depended on public fountains, water sellers and private wells (Pereira, 2008). However, in the 1880s, the responsibility for water supply was transferred to a French concessionary company, the *Compagnie Générale des Eaux pour l'Étranger*, which operated a small, but pioneering, water treatment plant in the Sousa River, a tributary of the Douro, to serve the metropolitan area of Porto (Amorim and Pinto, 2001).

Figure 2 – Old water fountain in Oporto and amateur fisherman in the lower Douro.

The second phase can be labelled the *state hydraulic period* (1919-1986), following the approval of the Water Law of 1919 that normalised the private and public management of water (Cunha et al., 1980). The Law stipulated that large interventions required prior authorisation from the state (which was later confirmed by the Decree No. 468 of 1971). The government that followed the 1926 military insurgency cancelled the contract with the French concessionary and the water services of Porto were municipalised. In 1940, the Zebreiros well field, a gravel water extraction site located near the Douro River, started to operate in order to increase water supply to the metropolitan area. This second phase largely coincided with the dictatorship that ruled Portugal from 1926 to 1974 and which included the construction of large infrastructure works as part of its political propaganda and developmental programmes. Some of the most strategic hydropower plants were built in the river basin by the national state during this period, such as Picote (1958), Miranda do Douro (1960) and Bemposta (1964), all of which benefited from financial and technical support provided by the United States through the Marshall Plan (Rollo, 2008). Powerful state agencies were organised to oversee water regulation, in particular the Hydraulic Services General Directory in 1949 and the Basic Sanitation General Directory in 1973.

Figure 3 – The upper Douro and the Bemposta dam (on the border between Portugal and Spain).

The third phase was the short *transitional period* (1986-1993), when the national legal framework, as well as wider economic and social life, started to change with Portugal joining the European Union. This phase was characterised by administrative and engineering solutions, especially the formation of a new regulatory agency in 1990, the National Water Institute (INAG), and the construction of new dams and pipelines, increasingly making use of European funds (Thiel, 2010). A growing number of academic and non-academic publications began to emphasise the importance of 'modern' water management, in particular economic instruments based on the polluter-pays principle (e.g. Miranda, 1986). Since 1985, the Crestuma-Lever Reservoir, located at 21.6 km from the mouth of the Douro, became the main source of freshwater for the approximately two million inhabitants of the Porto region (it is important to note that, paradoxically, the Crestuma-Lever Dam also reduced river flow and, as a result, increased the rate of salinity in Zebreiros, which affected the overall production of potable water). The first tourist boat started to operate in the Douro in 1986 and since then the industry has grown significantly (from 63,042 passengers in 1997 to 167,983 in 2003, according to CCDR-N, 2004).

Figure 4 – Boat passage at the Crestuma-Lever dam and the Lever water treatment plant.

The fourth phase was characterised by *water service liberalisation and river basin plans* (1993-2005). According to Queirós (2002), this was the moment when Portugal made significant progress in revising the national environmental regulatory framework (largely but not solely in response to European Union directives), in strengthening its environmental institutions (including the Ministry of Environment, Spatial Planning and Regional Development) and in developing national environmental planning (e.g. its first national environmental plan, in 1995). At the same time, Decree No. 379 was issued in 1993 and provided the legal basis for the gradual concentration of water services in regional companies (that was part of a movement from dispersed to concentrated sources of water supply, a tendency that has increased in more recent years). In 1994, a series of additional decrees reorganised the regulation of water use in the country: No. 45 (on river basin plans), No. 46 (water user licence) and No. 47 (tariffs based on the volumetric use of water). The National Water Council and various river basin councils, including one for the Douro, were established during this phase, but these were mainly advisory boards formed almost entirely by civil servants (rather than representatives of water users and civil society). The Douro river basin plan was adopted in October 2001 by the national government (see INAG, 2001), but it was only marginally implemented due to the lack of means and political appetite to produce major changes in established management practices. Other plans to revitalise the regional economy included initiatives related to the management of freshwater resources, such as new hydropower dams, fluvial tourism and the expansion of the water supply and sanitation network (CCDR-N, 2006).

The fifth and current phase entails the *implementation of the Water Framework Directive*, which started with the approval of the new Water Law in 2005 (that translated the WFD into Portuguese legislation). As has happened throughout the European Union, the new legal framework created a unique opportunity to reformulate water management practices and a search for responses to old and new problems in Portugal (Vlachos, 2003). Moreover, the transposition of the European Directive has not been without delays. In the first instance, Portugal was one of the countries that more promptly transposed WFD into national law, but later there were some problems with reporting the characterisation of water bodies, as determined by Article 5 of the Directive (Kanakoudis and Tsitsifli, 2011). In June 2008, the so-called ‘financial-economic regime’ was introduced, including the payment of bulk water charges that are supposed to induce use efficiency and pollution reduction (D’Alte, 2008). Any significant use of surface and groundwater now requires formal authorisation and attracts a charge (see more below). In October 2008, a new water regulatory agency was established, the North Portugal Hydrological Region Administration (ARHN). ARNH was called upon to assist in the planning and execution of regulations and measures for the implementation of sustainable water management.

The WFD regime and the provision of public water services

In 2009, ARHN started to prepare river basin management plans for the northern region of Portugal. According to the WFD timetable, such plans should have been ready for public consultation in 2009 (to allow the mitigation measures to be in place by 2012), but the political and economic context caused significant disruption, especially after the 2008 global financial crisis that affected Portugal particularly hard. The Douro River Basin plan was eventually published and public consultation was scheduled to take place between October 2011 and April 2012. The plan is a compilation of vast amounts of data,

summarised in various volumes, and provides an overview of the catchment, the ecological status of water bodies, anthropogenic pressures and recommended solutions (ARHN, 2011). Out of 353 surface water bodies, 71% are in good ecological status, whereas in 22% of the water bodies the condition is moderate, 6% is poor and 1% is bad; in terms of river extension, that means 3,034 km of good ecological status and 2,079 km of less than good (or 41% of the total river extension; note that the length of the water bodies is not identical).

The most relevant problems described are the impacts taking place in Spain (which deteriorates water quality and reduces 14% of the river flow), localised water scarcity situations along the catchment, contamination by nitrogen, phosphorous and organic matter (among other pollutants), soil erosion, and the insufficiency of hydrological data and the weak enforcement of existing environmental legislation (ARHN, 2011). To recover the ecological status of surface, subterraneous, coastal and artificial water bodies in the Douro, the plan recommended 215 mitigation measures that would require € 458.5 million. Of that total, € 374.5 million would be needed for the period 2009-2015 and € 84 million after 2015. 71% of the measures are related to water quality and 17% with water scarcity problems (more technical information, including maps and statistics, are available in ARHN, 2011).

It should be noted that the reform of public water services in the Douro has happened in parallel with the introduction of the WFD. The river basin still has a highly fragmented water industry, with numerous small, localised companies serving only part of the municipal territory and suffering from high operational costs and limited investment capacity (Alves, 2005; Martins, 1998). The large number of public service providers follows the historical delegation of responsibilities to municipal and sub-municipal administration. Since the approval of new legislation in the third period mentioned above (Law 379/1993), there has been a partial movement towards the consolidation of high services in regional entities, which are supposed to provide economies of scale and rationalise water abstraction at the regional level. Drinking water production (abstraction and treatment), called ‘high services’, and retail water distribution (supply of water to households and commercial customers), called ‘low services’, are separated. In the Douro, there are currently 124 high service and 139 low service companies (ARHN, 2011). There are also two utilities with intermunicipal coverage: Águas do Douro and Paiva (serving the Porto metropolitan area) and Água de Trás-os-Montes and Alto Douro (in the upper river basin). Significantly, the reorganisation of the water industry has created important opportunities for private business, especially through public-private partnerships and outsourcing, operation and maintenance contracts (IRAR, 2008). But the restructuring of the water industry in the last two decades has not guaranteed universal service provision in the river basin, given that the rate of water supply coverage is 92% and sanitation is still 83% (ARHN, 2011). The dilemmas faced when attempted to modernise the water industry in the Douro are closely connected with the intricacies and contradictory goals of the WFD. These difficulties will now be discussed.

THE NEW WATER REGULATION IN THE DOURO: CHANGES AND CONTINUITIES IN THE POLITICAL GEOGRAPHY OF ENVIRONMENTAL REGULATION

The changes in approach to water regulation in the Douro River Basin have closely followed the politicised interconnections between local processes, national politics and European integration. In that context, the introduction of the WFD has accelerated the trend of institutional reforms that started in previous decades (at least since 1986). With the approval of the 2005 Water Law, a series of events and regular media coverage have helped to broaden the discussion about the need to improve the basis of water use and conservation in the Douro (Ioris, 2008b). However, there has been a noticeable mismatch between discourse and practice, which suggests the existence of deeper obstacles to improving state regulation and water policy-making. This requires further examination. Before doing so, it is relevant to mention that the foregoing overview of the evolution of water use and regulation clearly illustrates our initial observation that the state apparatus cannot be considered a purely technical and administrative entity. On the contrary, the water regulation advanced by the Portuguese State has had major consequences for regional development and socionatural relations in the Douro. And vice-versa: water management problems and the reaction of various social groups have influenced the preparation and implementation of policy responses.

To a large extent, the official rhetoric of innovation and creative water management advanced by the Portuguese State regarding the WFD has been systematically narrowed down to calls for higher levels of operational and economic efficiency. The search for water efficiency is often described as a 'win-win' game that can, in theory, lower the level of water demand and effluent discharge (Cunha et al., 2007). The main focus on water efficiency is betrayed in the argument of Professor Francisco Nunes Correia – the Secretary of State for the Environment between 2005 and 2009 – for whom the Water Framework Directive is essentially a matter of cost reduction and efficient water use. For instance, in June 2008, at the opening session of the National Association of Portuguese Municipalities, the minister argued that:

> "Not all the water abstracted [in Portugal] is effectively utilised, given that an important proportion is associated with inefficient use and losses. (…) There are various reasons to take the efficient use of water as a strategic goal. First of all, there is a growing consciousness in society that water resources are limited and, thus, it is necessary to protect and conserve (…). [Another reason] is the economic interest at the national level, inasmuch as potential savings related to water correspond to significant figures, estimated at around 0.64% of national GDP (…) The efficient use of water is still important regarding the rationalisation of investments, to the extent that it allows a better use of existing infrastructure, reducing or even avoiding the need to increase water abstraction systems (…). The efficient use of water corresponds to the economic interest of the citizens, to the extent that makes possible a reduction in the costs of water use." [1]

The technocratic connection between efficiency, private gains and water management should come as no surprise, given that the minister has himself been one of the champions of the water reforms under the new paradigm of efficiency and economic rationality (Correia, 2000). The prevailing emphasis on efficiency gains has fundamental

[1] The argument that environmental benefits will be necessarily obtained from a more efficient use of water obviously ignores the fact that increases in efficiency are minimised by additional water demands that, in the end, can magnify the level of environmental impacts (what is famously described as the 'Jevons Paradox').

consequences in terms of the symbolism associated with the implementation of the WFD in Portugal. The perception of the WFD regulation being primarily connected with economic factors was summarised in one interview as “the pure philosophy of mercantilism, a speculation with water, rather than attempts to reduce its use” (interview with a farmer, 17 Nov 2008). At the end of the day, the public debate on water management reforms in Portugal and in the Douro has been colonised by the persistent association of water with economic (monetary) results and commodity exchange, which is vividly illustrated in Figure 2.

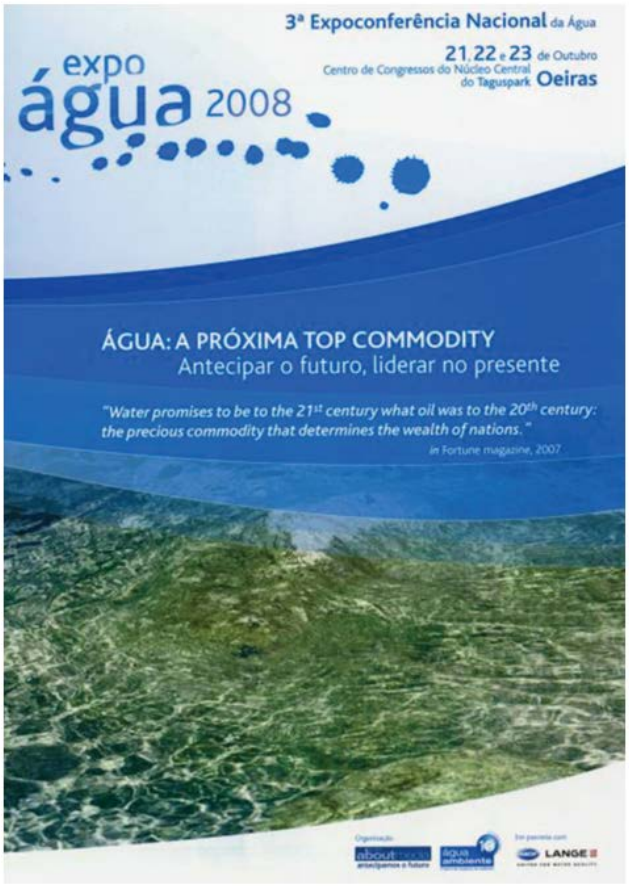

Figure 5 – Poster of a public event (Expo-Água 2008) describing water as a commodity (in the centre, it says in Portuguese: "Water: The next top commodity; Anticipate the future, take the lead in the present")

The same economic rationality and monetary symbolism that underpin the introduction of the new water legislation are related to the application of bulk water charges (i.e. charges levied on the use of raw water). According to the WFD, water use requires prior licensing and must attract monetary charges equivalent to its likely level of ecological impacts (Del Saz-Salazar et al., 2009). In Portugal, after years of intense disagreement, bulk water charges were formally introduced in 2008 (called *taxa de recursos hídricos*) and are calculated taking into account the volumes of water abstracted and effluent discharge, and also the extraction of inert material, land use area, public water projects and the level of regional water scarcity (the methodology and rationale of the charging scheme can be found in http://www.arhnorte.pt). Half of the income from

charges in the Douro goes to pay for 2/3 of ARHN's operational costs and the rest goes to a national fund that helps to support environment restoration measures (refer to the previous section for ARHN's role and responsibilities).

It is important to point out that, although the economic component of the WFD has been highly controversial in the Douro and elsewhere in the country, local water regulators and the technical staff of ARNH contacted during our research expressed concern about the negative repercussions of bulk water charges and systematic calls for efficiency. At a personal level, regulators seem quite aware of the difficulties in engaging stakeholders of the Douro and of the shortcomings of policies centred on the expression of the economic value of water. For instance, in interviews with two senior officials of ARHN (03 Nov 2008), thorny negotiations to approve the water charging scheme and the serious uncertainties about the best way to introduce new regulatory practices were explicitly mentioned. The very language used in ARHN publications reveals a more careful handling of bulk water charges and monetary valuation than the national publications produced by INAG, which is the national water regulator (e.g. Brito et al., 2008). However, this more cautious approach at the local regulatory team (which slightly contrasts with the stronger emphasis on the commodification of water by the national agency) has not prevented the introduction of bulk water charges from becoming the most contentious chapter of the new water regulatory regime in the Douro.

Reaction from the farming sector

Agriculture is probably the water user sector that best encapsulates the anxieties associated with the new water charges and the WFD in general. According to ARHN (2011), there are 104,670 hectares under irrigation in the Douro catchment, the great majority being small, intensive farming units located between Porto and Vila Real. These farmers have been criticised in official documents as being responsible for the highest rate of water demand and the lowest rates of user efficiency (e.g. INAG, 2005). As a result, the payment for bulk water charges was justified by the government as a mechanism that can 'steer the behaviour' of the water users (as declared by government representatives in a seminar organised by the Portuguese Farmers Confederation on 08 July 2008). However, the farming sector protested that there is no reason for the bulk water charges in Portugal to be three times higher than equivalent figures in France or to be adopted two years earlier than in Spain (i.e. 2008 in Portugal and 2010 in Spain).[2] In our meetings with corporate and family farmers, both groups were unanimous in complaining about the charges, which was seen as an extra burden being placed upon a sector that is already under serious pressure due to declining governmental support and the reform of the Common Agriculture Policy. Some blame northern European countries, where irrigation is less critical, for formulating a piece of 'draconian' legislation such as the WDF. Farmers also mentioned that, opposing the official discourse, there is limited room for improving efficiency (at least at low costs), since they are the first to want to

[2] In the Spanish section of the Douro the controversy about volumetric charges to agriculture has also dominated public discussion about the new water regulation. The use of water in the river basin is claimed to be one of the least efficient in Spain, which was used as justification for further modernization and higher efficiency goals (Gómez-Limón and Gómez-Ramos, 2007). As in Portugal, there is a suggestion that water pricing could influence farmers to invest in better equipment and in rainfed crops (Gómez-Limón and Martínez, 2006). However, because of the declining profitability of agriculture in Spain, bulk charges are likely to mainly affect farmers who want to start irrigating their land (Gómez-Limón, pers. commun.).

save water and reduce operational costs associated with electricity and irrigation equipment (which they claim to have done already).

In an interview with a representative of the corporate farming sector (21 Nov 2008), it was declared that:

> "Water has a huge 'value' for the farmers, but it should not have a monetary 'price'. (...) I consider a distortion of competition the application of a new fee on water used by agriculture in the Mediterranean countries. Why? Well, if you live in Scotland, or in Brussels, you have much higher and more frequent precipitation, whilst in Portugal it rains less and for shorter periods of time. A farmer in Portugal has to invest in water storage and pipelines, pay for the irrigation equipment, energy and in ten years has to replace the equipment. The costs are very high and already restrain water use. In this context, in comes the European Union and says, 'we all need to pay for water in order to improve efficiency and environmental quality. (…) The farmers don't need to pay for water to use it more efficiently… You know, the farmer already has a deep relationship with the water cycle. Now, the main risk is that this charge becomes [merely] a new tax that will not contribute to improving the environment. (…) I strongly believe that in situations of water scarcity the user should pay less, not more for water".

In turn, representatives from the family farmers interviewed for this research project protested that the water charges were adopted in Portugal before the definition of environmental management and mitigation targets (which only happened in 2011), which for them serves to demonstrate that the new water policies are in fact about the commercialisation of water and not the protection of nature. The following interview extract summarises the feeling among the small, family farmer:

> "[M]any times the farmers and the agriculture sector are seen as reckless users of water. These discussions fail to consider the reality of Portuguese agriculture, as well as ignoring the deep, even passionate, relationship of the farmer with water (…) [T]his law liberates the state from the responsibility to look after the conservation of water, given that it leaves it open to the market. About the social relevance of water, little or nothing is said. (…) [the consequences of the new charges] are inevitably the increase in production costs and, as a result, the elimination of those that don't have the financial means to pay for it" (CNA, 2006).

The water industry

While the introduction of bulk water charges stirred the reaction of small and large farmers to the WFD, a similar argument arose between regulators and operators of water supply and sanitation utilities. Despite the fact that a full utility privatisation (i.e. divestiture) seems temporarily off the political agenda[3], it has been repeatedly affirmed in official documents that the introduction of the WFD must be associated with stronger cost-recovery measures (through higher water service charges) and 'private sector-like' management of public utilities (including public-private collaboration). In particular, local water providers ('low service' companies) are blamed for their backward thinking

[3] Public utility privatisation was removed from the agenda, in large measure, because of intense public opposition. However, the worsening financial crisis led to the fall of the socialist cabinet in 2011 and the election of a centre-right government, which has expressed a renewed interest in utility privatisation.

which has been a "hindrance to the development of water supply sector" (that is the expression used on the cover page of the main professional magazine about water services in Portugal, Água and Ambiente, in June 2005). Claims for cost recovery have also provoked disputes and uneasiness between the various water utilities that operate in the same geographical area (i.e. the 'high' and 'low' service companies). For example, in 2008 the municipal company formed to serve the city of Porto (Águas do Porto) was able to reduce the purchase of water from the Águas do Douro and Paiva by 80,000 m^3/day (out of a total of 280,000 m^3 distributed daily), according to its chief-manager (interview on 14 Nov 2008). That corresponds to a net saving of € 216,000/month in terms of payment made to the regional company or around 12% of its income (in 2008). As a result, Águas do Douro and Paiva tried unsuccessfully to raise their tariffs by 8% in 2008, but the government only allowed an increase of 5.5% [note that the national rate of inflation in the year 2008 was 2.7%, much lower than the increases in tariffs].

A large company such as Águas do Porto may be able to confront the intermunicipal water authority (Águas do Douro and Paiva), but other municipal organisations are left in a much weaker position to negotiate costs and conditions with the regional water utilities. In our interviews with managers, engineers and politicians responsible for the water services in the cities and towns in the upper Douro, we detected a considerable level of resentment about the pressures exerted by the central government in favour of the regionalisation of the service. Some municipalities that started to buy water from the regional companies are even contemplating a return to local water abstraction and treatment operations, exactly the opposite of the national policies for the sector. It was mentioned that the purchase of water from the intermunicipal company normally costs more than twice the local costs of abstraction and treatment. Part of this difference can be explained by the investments made by the larger company to comply with European Union drinking water legislation, something that many local authorities have failed to observe. It is also the case that local water operators faced major political barriers to transfer higher service charges to the population and that has led to growing protest and, in some cases, physical violence (as in the invasion of the Peso da Régua Council in 2002). Regardless of public complaints, domestic water tariffs have increased further after the introduction of bulk water charges, but domestic charges have shown a low elasticity price-demand and, ultimately, a modest influence on the level of water demand (Monteiro and Roseta-Palma, 2007).

In practice, tariffs are now only marginally higher than before the WFD for the majority of the water utilities customers (i.e. the impact of the WFD charges on each household is relatively low, estimated at around € 0.20 per month, which corresponds to 2.5-3.0% of the average tariff, according to the information provided on the website of the Douro water utilities). This discrepancy between opposition towards WFD charges and real financial impact seems to suggest that the negative reaction is not about the financial levy *per se* but it is rather an expression of scepticism and mistrust in relation to new water policies. The negative reaction of farmers and household water users suggests a significant distance between the apparently consensual goals of the WFD regime and the actual involvement of the river basin population in the regulation of collective water issues. On the one hand, Barreira (2003) argues that the willingness of stakeholders to engage in water management has been historically very low in Portugal (as in Spain). On the other hand, however, our empirical results showed a more complex picture and a discernible frustration with the lack of opportunity to effectively influence the implementation of the new Directive. The involvement of the public has remained largely

restricted to consultations and formalised activities that offer little transparency and produce limited impact on decision-making (Veiga et al., 2008). In particular, the round of meetings organised in 2007-2008 by the national government to discuss the new legislation ended up being something of a 'big imbroglio' because it has been limited to a small number of participants and merely ratified decisions made in advance (interview with a NGO activist, 19 Nov 2008).

The lasting controversy over dams

A series of coordinated protests have emerged against the construction of large dams in the Douro, given that the introduction of the WFD has not prevented the approval of large engineering projects. Six new large hydropower schemes (out of ten in the whole of Portugal) are planned for the Douro, according to the National Programme of Dams with High Hydroelectric Potential (INAG, 2007). The new dams are part of the attempt to secure 60% of Portuguese electricity from renewable sources by 2020, which was confirmed by the previous Prime Minister José Sócrates in a public event when he stated that "Portugal is the European country with most hydropower reserves to be exploited" (RTP News, 20 Nov 2008). As one of the main organised groups, the Citizenship Movement for the Development of the Tâmega River (a tributary of the Douro) has challenged the activities of the energy companies (the Portuguese EDP and the Spanish Iberdrola) involved in the construction of the Fridão Dam. The controversy about an impoundment planned in the River Côa in the 1990s and firmly resisted because of the impact on archaeological sites with rupestrian paintings is still vividly present in the memory of the local residents. Apart from environmental impacts caused by dams in the Douro (Azevedo, 1998; Bordalo et al., 2006; Sabater et al., 2009), there is a feeling among the local residents that the hydropower schemes built in recent decades have contributed little to improve the life of the communities in the river basin. After construction, the operation of the dams only creates a small number of jobs in the region and brings marginal financial contribution to local communities (cf. our interviews with residents and city councillors). The fact that most of the electricity generated in the Douro is then transferred elsewhere, mainly to the south of Portugal, reinforces a sense of dual citizenship between the coast and the interior.

Probably the largest and most emblematic mobilisation has been against the new dam in the River Sabor, a large structure (123 metres high) that will flood 2,820 hectares and also destroy several archaeological sites (see Figure 3 regarding a protest event in April 2008). In 2009, the European Parliament received a formal complaint against the dam by a collation of local organisations (called *Plataforma Sabor Livre*), which was then dismissed (allegedly due to the pressures of the President of the European Commission Durão Barroso, a former prime minister of Portugal). The anti-dam activists systematically expressed their grave concerns with what they see as 'serious mistakes' during the preparation of the environmental impact assessment (interview with NGO activist, 19 Nov 2008). Despite the likely impact on important conservation reserves (even acknowledged in the EIA conducted by the electricity company Portugal Energies (EdP), which was privatised in 1999), the government gave the go-ahead for the project and the construction initiated in 2011.

Figure 6 – Leaflet promoting mobilisation against the Sabor Dam
(it says in Portuguese: "III Summit: For the Protection of the Sabor River, April 2008, in the municipalities of Mogadouro and Alfândega da Fé")

THE PROSPECTS OF WATER REGULATION IN THE DOURO

The contested bases of the introduction of the Water Framework Directive in the Douro River Basin demonstrate the significant distance between responses formulated at the high level of European governance and how social actors interpret and negotiate the new regulation on the ground. If the economic agenda of the WFD seems to dominate the public debate, there remain serious questions about the effectiveness of the new regulation and the mitigation of environmental risks. Notwithstanding legal and discursive improvements, the long-term causes of water problems – namely, political pressures for maximising the economic outcomes and minimising the investments in social equity and environmental conservation – have been largely left out of the process of regulatory change. In addition, the limited availability of long-term monitoring data and of detailed technical studies has contributed to increase the uncertainties about the new water regulation. In the end, despite its important innovations, the new regulatory regime in Portugal has reinforced the existing pattern of uneven gains and losses. Attempts to improve water management in the catchment under the WFD regime have often revived long-established asymmetries and the inconsistencies of public policies related to the allocation, use and conservation of shared resources. The new water regulation has become an multilayered arena of disputes, where some groups (construction companies, hydroelectricity companies, large water companies, etc.) have

benefited more than others (farmers, urban water customers, communities that continue to be affected by large engineering schemes).

In terms of the prospects of water regulation in the Douro, without a more critical reassessment of the possibilities and barriers of the WFD regulation in the light of local and national politics, past mistakes are likely to be repeated. Public water policies are the result of multiple forms of interaction between social groups and their shared water system. The crux of the matter is that the regulatory regime introduced by the WFD has been contained by the internal contradictions and political susceptibilities of the national state. More than technical and administrative procedures, the reform of water regulation under the new Directive has represented an invaluable opportunity to reaffirm the authority of the state and its territorial power. The problem is beyond the level of individual regulators and their relation with the new institutional demands, but it is fundamentally a question of the bureaucratic rationality and political commitments of the state apparatus. One needs to necessarily address the politicised geography of water regulation to understand the fluidity of policies and the ambiguity of the official discourse. As observed by Habermas (2001, in Eckersley, 2004), the democratic deficit in the European Union can only be bridged when citizens share a sense of European identity and see themselves as the authors and addresses of a truly European law. In the end, without a more democratic and responsible dialogue with local social groups, any change in the regulation is likely to fall into the same ‘institutional trap' that has limited the improvement of water use and conservation in the Douro.

ACKNOWLEDGEMENTS

The research was supported by The Carnegie Trust for the Universities of Scotland. The author is grateful to the Department of Geography of the University of Porto, to Jenny Johnston for helping with Figure 1 and, in particular, to the various stakeholders who kindly agreed to take part in the interviews.

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